

## Description

# Pullout Device for Cabinet Drawers, Especially for a Tall Cabinet

### BACKGROUND OF INVENTION

[0001] 1. Field of the Invention.

[0002] The invention relates to a pullout device for cabinet drawers, in particular, a tall pantry pullout. The pullout device comprises a frame arranged in the interior of a cabinet body and provided at its front end with a vertical longitudinal support having a cabinet door (door panel) or the like attached thereto. The frame that supports shelf members can be pulled out of the cabinet body in a direction of a central longitudinal plane that extends perpendicular to the front opening plane of the cabinet body from an inwardly positioned storage position into a fully pulled-out position in front of the cabinet body such that the frame, in particular provided with an upper and a lower pullout rail as a guide member, respectively, is positioned with a rearwardly positioned vertical longitudinal support essen-

tially in the same plane as the opening plane of the cabinet body.

[0003] 2. Description of the Related Art.

[0004] In generally known tall cabinets, referred to as pullout pantries, a support member, guided in a central longitudinal plane of the cabinet body on pullout rails or the like, is embodied as a substantially closed frame having vertical longitudinal supports between which shelf members are secured so that their accessibility from two sides in the fully pulled-out position is ensured. For removing articles from the opposed area of the shelf members, the user is required to move around the fully pulled-out cabinet drawer in order to remove articles so that, in particular when the shelf members are fully loaded, an interruption-free removal is ensured only with an increased time expenditure.

[0005] In a pullout device for cabinet drawers according to DE 93000364.1 U1, the cabinet drawer can be pulled out of the cabinet body only partially. For a forced pivoting of the cabinet drawer in this connection, an additional bottom side or top side guide module is required in order to ensure stability of the cabinet drawer. This guide module limits the possibilities of obtainable pivot positions, and a

partial area of the cabinet drawer remaining within the body of the cabinet is accessible for the user only with difficulty.

[0006] A pullout device according to EP 0 821 899 A1 proposes also coupled pullout and pivot actions of the cabinet drawer. In this configuration, the support member is also moved such that a portion of the shelf members remains within the cabinet body in a position that is difficult to access.

## SUMMARY OF INVENTION

[0007] It is an object of the present invention to provide a pullout device for a tall cabinet drawer configuration that enables with minimal technical expenditure an improved use of pullout pantries, with which high weight loads of the cabinet drawer can be received reliably, and which, in the area of the more easily accessible cabinet drawer, provides a reliable finger protection for the user.

[0008] In accordance with the present invention, this is achieved in that the pullout device, particularly for tall cabinet drawers, is provided with a support that defines for the cabinet drawer an extended pullout position such that the completely pulled-out frame defines a spacer gap at its rear end relative to the opening plane of the cabinet body.

[0009] The pullout device according to the invention is configured in the area of the components supporting the frame as a functionally expanded module by which the cabinet drawer can be pulled out farther than the fully pulled-out position reached by the usually provided pullout travel for prior art pullout pantries into an extended pullout position in which the shelf members are more easily accessible and from which position the cabinet drawer can be returned safely. This extended pullout position is designed such that the entire cabinet drawer with the shelf members is moved into a position in front of the opening plane of the cabinet body; in this position, a sufficient spacing is provided so that in this area a pivot movement of the components is possible and, by providing a spacer gap relative to the opening plane, the requirements in regard to a reliable and effective pinching protection (finger protection) is ensured.

[0010] With this pivotability of the cabinet drawer when completely pulled out of the cabinet body, a significant simplification for removal of the articles from the shelf members is achieved because, for example, by a 90 degree pivoting action in or counter to the clockwise direction, the shelf members are accessible from either side and

walking around the pulled-out cabinet drawer is no longer required.

- [0011] Instead of the two 90 degree pivot positions predetermined by appropriate locks, stops or the like and defined relative to a central zero position that corresponds to the return and pullout plane, it is also conceivable to design the support of the cabinet drawer such that its frame enables a 360 degree rotation or that it can be moved continuously into infinite intermediate positions.

#### **BRIEF DESCRIPTION OF DRAWINGS**

- [0012] Fig. 1 is a perspective schematic illustration of a cabinet body, in particular, a tall cabinet showing the cabinet drawer in the pullout position.
- [0013] Fig. 2 is a perspective illustration similar to Fig. 1 showing the cabinet drawer in a pivoted or rotated position.
- [0014] Fig. 3 shows in a plan view onto the cabinet body according to Fig. 1 a first position of the cabinet drawer.
- [0015] Fig. 4 shows in a plan view onto the cabinet body according to Fig. 1 a second pivot position of the cabinet drawer.
- [0016] Fig. 5 shows in a plan view onto the cabinet body according to Fig. 1 a third pivot position of the cabinet drawer.
- [0017] Fig. 6 shows an enlarged side view of the cabinet body of Fig. 1.

- [0018] Fig. 7 is a detail view of the cabinet drawer in the area of its lower guide elements.
- [0019] Fig. 8 is a detail view similar to Fig. 7 with the cabinet drawer in a locking position.
- [0020] Fig. 9 shows in a view similar to Fig. 3 the upper guide elements of the cabinet drawer in a first functional position.
- [0021] Fig. 10 shows in a view similar to Fig. 3 the upper guide elements of the cabinet drawer in a second functional position rotated relative to the first position of Fig. 9.
- [0022] Fig. 11 shows in a view similar to Fig. 3 the upper guide elements of the cabinet drawer in a third functional position rotated farther relative to the second position of Fig. 10.

#### **DETAILED DESCRIPTION**

- [0023] The perspective illustration of Fig. 1 shows the cabinet body identified by reference character 1 which is embodied as a tall pullout pantry. In the interior of the cabinet body 1, a cabinet drawer 4 supported in the area of a bottom member 2 and a top member 3 of the cabinet body is provided. This cabinet drawer 4 has a frame 5 whose vertical longitudinal front support 6 has a cabinet door or door panel 7 attached thereto so that a front opening plane E (Fig. 3) of the cabinet body 1 is closed when mov-

ing the cabinet drawer 4 into the storage position (not illustrated) within the cabinet body 1. As illustrated in Fig. 1, the frame 5 supporting the shelf members 8 can be pulled out in a direction of a central longitudinal plane M that is perpendicular to the forward opening plane E from an inner storage position into the illustrated extended pullout position. In known pullout pantries, the frame 5 is movable in particular by means of guide parts 9, 10 that are in the form of upper and lower pullout rails. In these prior art cabinets, a complete pullout position is reached in which the frame 5 with its vertical longitudinal rear support 11 is positioned substantially in the same plane as the opening plane E of the cabinet body 1.

- [0024] In the embodiment of the pullout device according to the invention for a cabinet drawer 4 provided within a tall cabinet 1, a support is provided such that, when the frame 5 is completely pulled out, a spacer gap S (Fig. 3) is formed to the rear of the frame 5 relative to the opening plane E so that in this way an extended pullout position of the cabinet drawer 4 in comparison to the pullout position of the prior art is defined.
- [0025] In this extended pullout position, the cabinet drawer 4 is pivotable (arrow B shown in Fig. 2) wherein in particular a

pivoting of the frame 5 about a vertical axis H is provided. The frame 5 is connected by bearings 12, 13, respectively, with the upper and lower guide parts 9 and 10 that are preferably embodied as pullout rails. In this way, the vertical axis H is defined that coincides with the central longitudinal plane M' of the frame 5 and the central longitudinal plane M of the cabinet. About this vertical axis H, the frame 5 is pivotable into the article removal position in or counter to the clockwise direction (arrows D, D' in Figs. 4, 5) and back into the storage position.

- [0026] By means of the extended pullout position, in the area of the spacer gap S a defined spacing is provided for the cabinet drawer 4; this spacing is dimensioned or sized such that, when manipulating the cabinet drawer 4, a reliable finger or pinching protection is provided. In the extended pullout position, the cabinet movement can be realized without impairment of adjacently positioned pullout pantries or similar installed cabinets because the finger or pinching protection is ensured also relative to these cabinets.
- [0027] In this configuration, the cabinet drawer 4 can be moved into defined stepped 90 degree pivot positions (Fig. 4, Fig. 5). It is also conceivable that the cabinet drawer 4 can

be moved continuously (i.e., without defined pivot steps) into infinite positions. In a further embodiment, it can be provided that the cabinet drawer 4, after having been moved into the extended pullout position, can be freely rotated clockwise or counterclockwise. In accordance with the known embodiments of movable cabinet drawers, the pullout movement (arrow Z) as well as the pivot or rotational movement (D, D') can be carried manually. It is also conceivable that a separate drive (not illustrated) is provided.

- [0028] When looking at Figs. 2 through 5, the defined pivot positions of the cabinet drawer 4 can be seen. In the plan view according to Fig. 3, the pullout has been moved into the pullout/return position (Z, Z') that defines a zero position; in Fig. 4, a pivot movement D' counter to the clockwise direction into a first 90 degree position has been carried out; and in the illustration according to Fig. 5, a 90 degree pivot position after rotation D in the clockwise direction is illustrated (also shown in Fig. 2).
- [0029] In Fig. 6, a detailed side view similar to Fig. 1 shows the configuration of the guide parts 9 and 10 by means of which the enlarged spacer gap S is realized. The guide parts 9, 10 in this embodiment are provided with appro-

priate pullout rails 14, 15; however, other guide or support components are also conceivable in place of the rails 14, 15.

[0030] In the enlarged detail views according to Figs. 7 and 8, the guide part 12 in the area of the lower support is illustrated in an exemplary fashion; the supporting action of the frame 5 in the area of its axial bearing 16 is shown particularly well. In this embodiment, the axial bearing 16 is connected to an additional support web 18 that interacts to the rear with a locking device 19 in the area of the guide part 9. By means of this locking device 19, the cabinet drawer 4 after reaching its extended pullout position (Fig. 6, Fig. 8) is blocked such that an undesirable return movement (arrow Z') is reliably prevented. The illustrated locking device 19 acts mechanically; it is also conceivable to provide an actuator that has electric, hydraulic, pneumatic, and/or magnetic actuation (not illustrated).

[0031] The locking device 19 according to Figs. 7 and 8 is embodied as a rocker 20. It can be moved by means of a pressure pin 21 (arrow C, Fig. 8) such that the movement blockage is realized in the area of the guide part 9 by contacting at point P.

[0032] From the locking position of the cabinet drawer 4 illus-

trated schematically in Fig. 3 that is reached after the cabinet drawer 4 has been moved out of the cabinet body 1, the locking device 19 can be released in the area of the lower guide part 9 in that at a spacing A relative to the vertical axis H an adjusting force F that acts on the frame 5 essentially in the direction of the central longitudinal plane M is generated, in particular by hand, and in this way a corresponding pivot movement D' is caused. Upon reaching the predetermined 90 degree pivot position, the pin 21 is moved into an appropriate stop position (not illustrated), so that an undesirable return pivot action is prevented. When subsequently introducing a counterforce F' on the frame 5 (Fig. 4), the frame part 5 can be returned into the central locking position (Fig. 3) that corresponds to the pullout/return position, and from this position it can also be pivoted farther into the next 90 degree position D (Fig. 5). In this way, the frame 5 has in principle three predetermined locking positions.

[0033] In Figs. 9 through 11, plan views show the configuration of the guide part 10 in the area of the top member 3. In this area, a second locking device 23 is provided with which upon reaching one of the 90 degrees positions (Fig. 11) the movement (arrow Z') of the frame 5 in the return

direction is blocked. In this way, in cooperation with the lower locking device 19 a safe securing action is achieved in that the devices 19 and 23 act together.

- [0034] Advantageously, the locking device 23 is controlled for the pivot movement of the frame part 5 (Fig. 10) such that by means of appropriate tensioning and stop members in the area of the guide part 10 the movement play required for the movements Z, Z' is compensated and, in this way, the entire module 10 is provided with a reinforcement so that lateral tilting or tipping of the pivoted frame 5 is safely prevented even for high weight loads.
- [0035] In Fig. 9 the movement of the guide part 10 into the extended pullout position is illustrated, wherein a U-shaped profile member 24 supporting the bearing 13 is secured by means of guide part 10 in the pulled-out position. In a bottom leg 25 of the U-shaped profile member 24 a groove 26 is provided that is engaged by a locking bolt 21 of the guide part 10 and an eccentric module 27 at a constant spacing K. The eccentric module 27 comprises a bolt part 28 that is connected to the frame 5 so as to extend in the direction of the vertical axis H and forms at the same time the pivot of the frame part 5.
- [0036] In the position according to Fig. 9, the eccentric module

27 is moved in the direction of the groove 26 to a guide opening 29 that widens the groove 26 so that, when the pivot movement D (Fig. 10) begins, a pivot force is introduced into the U-shaped profile member 24 by means of the bolt part 28. In this connection, the U-shaped profile member 24 can pivot (arrow W) in the area of the looking bolt 21 oriented toward the guide part 10. At the same time, a minimal return movement (arrow R) of the U-shaped profile member 24 to the rear guide part 10 takes place and the backside 30 of the U-shaped profile 24 is moved as a result of its slanted position (angle W) against a rear stop part 32, 32' in such a way that a movement gap T is closed and the U-shaped profile member 24 reaches the tensioning position ( $T=0$ , Fig. 11) on the guide part 10.

[0037] While specific embodiments of the invention have been shown and described in detail to illustrate the inventive principles, it will be understood that the invention may be embodied otherwise without departing from such principles.